WHAT IS CLAIMED IS:

1. In a system in which a load is connected across first and second power terminals of a battery, a circuit for sensing the condition of the battery comprising:

a current source generating a first current;

a resistor;

a selectively enabled current switch,

means connecting the current source in series with the resistor, the selectively enabled current switch, and the battery for selectively passing the first current through the resistor and the battery;

means for sensing the voltage across the resistor; and

means for sensing the voltage across the battery for the condition when the selectively enabled switch is open and for the condition when the selectively enabled switch is closed.

2. In the system as claimed in claim 1, wherein the voltage is sensed across the resistor to determine the amplitude of the first current.

3. In the system as claimed in claim 2, wherein the values of the voltages sensed across the battery when the selectively enabled switch is closed and then opened and the value of the voltage sensed across the resistor are for determining the value of the resistance of the battery.

4. In the system as claimed in claim 1, wherein the voltage sensed across the resistor is coupled to microprocessor circuitry and wherein the voltage sensed across the battery is also coupled to the microprocessor circuitry

and wherein the microprocessor circuitry is programmed to determine the value of the battery resistance.

5. In the system as claimed in claim 1, wherein the battery is a first battery for supplying power to the load, with a load current from the first battery flowing through the load within a first loop; and wherein the current source generating a first current includes a second power source for supplying said first current and wherein said first current flows through a second loop which includes the first battery and said second power source.

6. In the system as claimed in claim 5, wherein the first battery and the second power source are connected in series adding

7. In the system as claimed in claim 5, wherein the first battery and the second power source are connected in series opposing.

8. In the system as claimed in claim 5, wherein the first battery, the second power source, the current source, the selectively enable switch and the resistor are connected in series defining said second conductive loop for selectively passing said first current.

9. In the system as claimed in claim 8, wherein the first battery and the second power source are poled to conduct current in the same direction.

10. In the system as claimed in claim 8, wherein the first battery and the second power source are poled to conduct current in opposite directions.

11. In the system as claimed in claim 5, wherein the second power source is connected between the first power terminal and a third terminal, and

wherein the resistor and the switch are connected in series between the third terminal and the second power terminal.

12. A system comprising:

a battery with first and second power terminals;

a load connected across said first and second power terminals with the battery supplying the power to the load,

a circuit for sensing the internal resistance of the battery comprising:

a current source for producing a first current;

a resistor;

a selectively enabled current switch,

means connecting the current source in series with the resistor, the selectively enabled current switch, and the battery for selectively passing the first current source current through the resistor and the battery;

means for sensing the voltage across the resistor; and

means for sensing the voltage across the battery for the condition when the selectively enabled current switch is open and for the condition when the selectively enabled current switch is closed.

13. In a system as claimed in claim 12 wherein the voltage sensed across the resistor is supplied to a microprocessor and wherein the voltages sensed across the battery are supplied to the microprocessor; and wherein the microprocessor is programmed to determine the value of the internal resistance of the battery on the basis of the sensed voltages.

14. In a system in which a load is connected across first and second power terminals of a battery whereby the battery supplies the load current to the load, a circuit for sensing the condition of the battery comprising:

a resistor of known value;

a selectively enabled switch for selectively causing a test current to flow through the resistor and the battery,

means for sensing the voltage across the resistor; and

means for sensing the voltage across the battery for the condition when the selectively enabled switch is open and for the condition when the selectively enabled switch is closed.

15. In the system as claimed in claim 14 wherein the voltage is sensed across the resistor to determine the amplitude of the test current; and wherein the voltage is sensed across the battery for the condition when the selectively enabled switch is open and for the condition when the selectively enabled switch is closed is for determining the value of the internal resistance of the battery.

16. In the system as claimed in claim 15, wherein the voltage sensed across the resistor and the voltage sensed across the battery are supplied to an analog-to-digital converter (ADC) and wherein the ADC produces output signals corresponding to the voltages sensed, and wherein these output signals from the ADC are supplied to a microprocessor for determining the value of the internal resistance of the battery.

17. In the system as claimed in claim 15 wherein the battery voltage is sensed by means of a voltage divider connected across the battery.

18. A method for monitoring the condition of a battery, having first and second power terminals across which a load is connected and to which the battery supplies a load current, comprising the steps of:

selectively causing a resistor of known value to be coupled to the battery for selectively causing a test current to flow through the resistor and the battery, in addition to the load current;

sensing the voltage across the resistor;

sensing the voltage across the battery for the condition when the load current and test current flow through the battery and for the condition when only the load current flows through the battery; and

calculating the value of the battery resistance.

19. The method for monitoring the condition of the battery as claimed in claim 18 further including memory means for storing acceptable battery parameters; and wherein the calculated values of battery resistance are compared against the stored acceptable parameters.

20. The method as claimed in claim 18 wherein the test current is selectively and continuously applied and wherein the voltage across the battery is selectively and continuously sensed and the battery resistance is selectively and continuously calculated and the calculated values are continuously compared to stored parameters to ensure that the calculated values lie within an acceptable range.

21. The method as claimed in claim 18 wherein the step of calculating the value of the battery resistance includes: (a) the step of using the voltage sensed across the resistor to determine the amplitude of the test current ; and (b) the step of dividing the difference in the voltage sensed across the battery for the condition when the load current and test current flow through the battery and for the condition when only the load current flows through the battery by the test current to obtain the value of the battery resistance.

22. The method as claimed in claim 18 wherein calculating the value of the battery resistance includes the step of supplying the voltage sensed across the resistor and the voltage sensed across the battery to a microprocessor.